

What is claimed is:

1. Method for performing speech recognition on an input audio signal having a speech component and a noise component, said method comprising
5 the steps of:
 - (a) obtaining at least one clean speech model;
 - (b) obtaining at least one noise model;
 - (c) deriving at least one noisy speech model directly from said at least one clean speech model and said at least one noise model; and
10 (d) applying said at least one noisy speech model to extract a recognized text from the input audio signal.
2. The method of claim 1, wherein said obtaining step (b) comprises the step of estimating said at least one noise model from one or more features of
15 the noise component in the input audio signal.
3. The method of claim 2, wherein said deriving step (c) comprises the step of:
 - (c1) generating a weight in accordance with said at least one noise
20 model.
4. The method of claim 3, wherein said deriving step (c) further comprises the step of:
 - (c2) applying said weight to said at least one noise model and said at
25 least one clean speech model for deriving said at least one noisy speech model.
5. The method of claim 4, wherein said applying step (c2) applies said weight in a first multiplication operation to said at least one noise model
30 and in a second multiplication operation to said at least one clean speech model.
6. The method of claim 5, wherein said products from said multiplication operations are summed to derive said at least one noisy
35 speech model.

0390399.031501
"0390399.031501"

7. Apparatus for performing speech recognition on an input audio signal having a speech component and a noise component, said apparatus comprising:

- 5 means for obtaining at least one clean speech model;
means for obtaining at least one noise model;
means for deriving at least one noisy speech model directly from said at least one clean speech model and said at least one noise model; and
means for applying said at least one noisy speech model to extract a
10 recognized text from the input audio signal.

8. The apparatus of claim 7, wherein said means for obtaining at least one noise model estimates said at least one noise model from one or more features of the noise component in the input audio signal.

15

9. The apparatus of claim 8, wherein said deriving means generates a weight in accordance with said at least one noise model.

10. The apparatus of claim 9, wherein said deriving means further
20 applies said weight to said at least one noise model and said at least one clean speech model for deriving said at least one noisy speech model.

11. The apparatus of claim 10, wherein said deriving means applies said weight in a first multiplication operation to said at least one noise model
25 and in a second multiplication operation to said at least one clean speech model.

12. The apparatus of claim 11, wherein said products from said multiplication operations are summed to derive said at least one noisy
30 speech model.

13. A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps of a
35 method for performing speech recognition on an input audio signal having a

105180 68E0E660

speech component and a noise component, said method comprising the steps of:

- (a) obtaining at least one clean speech model;
- (b) obtaining at least one noise model;
- 5 (c) deriving at least one noisy speech model directly from said at least one clean speech model and said at least one noise model; and
- (d) applying said at least one noisy speech model to extract a recognized text from the input audio signal.

10 14. The computer-readable medium of claim 13, wherein said obtaining step (b) comprises the step of estimating said at least one noise model from one or more features of the noise component in the input audio signal.

15 15. The computer-readable medium of claim 14, wherein said deriving step (c) comprises the step of:
(c1) generating a weight in accordance with said at least one noise model.

20 16. The computer-readable medium of claim 15, wherein said deriving step (c) further comprises the step of:
(c2) applying said weight to said at least one noise model and said at least one clean speech model for deriving said at least one noisy speech model.

25 17. The computer-readable medium of claim 16, wherein said applying step (c2) applies said weight in a first multiplication operation to said at least one noise model and in a second multiplication operation to said at least one clean speech model.

30 18. The computer-readable medium of claim 17, wherein said products from said multiplication operations are summed to derive said at least one noisy speech model.

093333-0814
"80" 5855550